AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): An ink supply unit for an ink jet recording apparatus, having:

a supporting member including a valve seat; and

a membrane valve including:

~~at its periphery~~ a thick portion at a periphery of the membrane valve,

a portion including an ink passing port in a center of the membrane valve, opposing the valve seat, and

a thin membrane portion interconnecting the thick portion and the portion including the ink passing port, said thin membrane portion being concentric around the center of the membrane valve,

~~including at its central region a thin portion having an ink passing port in a center,~~ wherein said thick portion of said membrane valve ~~being~~ is supported by said supporting member, and said ink passing port of said membrane valve selectively contacting said valve seat,

wherein when ink is provided to said membrane valve, said ink passing port comes into contact with or separates from the valve seat correspondingly to a differential pressure of ink across said membrane valve, and

wherein ~~the central region of~~ the thin membrane portion of the membrane valve has an angled portion that is concentric with respect to the ink passing port.

Claim 2 (currently amended): An ink supply unit for an ink jet recording apparatus, having:

a supporting member including a valve seat;

a membrane valve including:

~~at its periphery~~ a thick portion at a periphery of the membrane valve,

a portion including an ink passing port in a center of the membrane valve, opposing the valve seat, and

a thin membrane portion interconnecting the thick portion and the portion including the ink passing port, said thin membrane portion being concentric around the center of the membrane valve,

~~including at its central region a thin portion having an ink passing port in a center,~~ wherein said thick portion of said membrane valve ~~being~~ is supported by said supporting member, and said ink passing port of said membrane valve selectively contacting said valve seat[[;]], ~~and~~

~~elasticity applying means for pressing the ink passing port against said valve seat,~~

wherein when ink is provided to said membrane valve, said ink passing port comes into contact with or separates from the valve seat correspondingly to a differential pressure of ink across said membrane valve, and

wherein the thin membrane portion of the membrane valve is formed as an approximately flat surface, having plural protruding rib portions radially extending from the portion including the ink passing port to the thick portion and located at regular intervals.

Claim 3 (original): The ink supply unit for an ink jet recording apparatus according to claim 1 or 2, wherein the membrane valve is arranged in a flowing passage connecting an ink cartridge and an ink jet recording head.

Claim 4 (original): The ink supply unit for an ink jet recording apparatus according to claim 1 or 2, wherein the membrane valve is arranged in an ink container detachably attached to a flowing passage for supplying ink to an ink jet recording head.

Claim 5 (currently amended): The ink supply unit for an ink jet recording apparatus according to claim 9 or [[2]] 17, wherein a vicinity of a periphery of the ink passing port is pressed against the valve seat by the elasticity applying means.

Claim 6 (currently amended): A membrane valve of an ink supply unit for an ink jet recording apparatus, comprising:

a thick portion at a periphery of said membrane valve, configured to be supported by a supporting member;

~~a thin portion at a central region of said membrane valve; and~~

a portion including an ink passing port in a center of the ~~thin portion~~ the membrane valve, configured to selectively contact a valve seat of the supporting member[[,]] and

a thin membrane portion interconnecting the thick portion and the portion including the ink passing port, said thin membrane portion being concentric around the center of the membrane valve,

wherein when ink is provided to said membrane valve, said ink passing port comes into contact with or separates from the valve seat correspondingly to a differential pressure of ink across said membrane valve, and

wherein ~~the central region of~~ the thin membrane portion has an angled portion that is concentric with respect to the ink passing port.

Claim 7 (currently amended): A membrane valve of an ink supply unit for an ink jet recording apparatus, comprising:

a thick portion at a periphery of said membrane valve, configured to be supported by a supporting member;

~~a thin portion at a central region of said membrane valve; and~~

a portion including an ink passing port in a center of the ~~thin portion~~the membrane valve, configured to selectively contact a valve seat of the supporting member[[,]] and

a thin membrane portion interconnecting the thick portion and the portion including the ink passing port, said thin membrane portion being concentric around the center of the membrane valve,

wherein when ink is provided to said membrane valve, said ink passing port comes into contact with or separates from the valve seat correspondingly to a differential pressure of ink across said membrane valve, and

wherein the thin membrane portion is formed as an approximately flat surface, having plural protruding rib portions radially extending from the portion including the ink passing port to the thick portion and located at regular intervals.

Claim 8 (currently amended): The membrane valve of an ink supply unit for an ink jet recording apparatus according to claim 6 or 7, wherein the ~~membrane valve further comprises: a region formed in the vicinity of~~ said portion including the ink passing port~~, said region being~~ is configured to be a contact surface for elasticity applying means for pressing said ink passing port against the valve seat.

Claim 9 (previously presented): The ink supply unit for an ink jet recording apparatus according to claim 1, further comprising elasticity applying means for pressing said ink passing port against said valve seat.

Claim 10 (previously presented): The ink supply unit for an ink jet recording apparatus according to claim 1, wherein a shape of said angled portion is selected from the group consisting of a "V" shape and a "U" shape.

Claim 11 (previously presented): The membrane valve of an ink supply unit for an ink jet recording apparatus according to claim 6, wherein a shape of said angled portion is selected from the group consisting of a "V" shape and a "U" shape.

Claim 12 (currently amended): An ink supply unit for an ink jet recording apparatus, having:

a valve seat; and

a membrane valve including:

~~at its periphery~~ a periphery portion at a periphery of the membrane valve, and

~~including at its central region~~ a central portion having an ink passing port in a center at a central region of the membrane valve,

wherein said periphery portion of said membrane valve ~~being~~ is supported by a supporting member, and said ink passing port of said membrane valve selectively ~~contacting~~ contacts said valve seat,

wherein when ink is provided to said membrane valve, said ink passing port comes into contact with or separates from the valve seat correspondingly to a differential pressure of ink across said membrane valve, and

wherein the central region of the central portion of the membrane valve has an angled portion that is concentric with respect to the ink passing port.

Claim 13 (currently amended): An ink supply unit for an ink jet recording apparatus, having:

a valve seat;

a membrane valve including:

~~at its periphery~~ a periphery portion at a periphery of the membrane valve, and

~~including at its central region~~ a central portion having an ink passing port in a center at a central region of the membrane valve,

wherein said periphery portion of said membrane valve ~~being~~ is supported by a supporting member, and said ink passing port of said membrane valve selectively ~~contacting~~ contacts said valve seat; and

~~elasticity applying means for pressing the ink passing port against said valve seat~~,

wherein when ink is provided to said membrane valve, said ink passing port comes into contact with or separates from the valve seat correspondingly to a differential pressure of ink across said membrane valve, and

wherein the central portion of the membrane valve is formed as an approximately flat surface, having plural protruding rib portions radially extending from the ink passing port to the periphery portion and located at regular intervals.

Claim 14 (new): The ink supply unit for an ink jet recording apparatus according to claim 1, wherein said portion including the ink passing port is thicker than said thin membrane portion.

Claim 15 (new): The ink supply unit for an ink jet recording apparatus according to claim 1, wherein when said thin membrane portion elastically deforms upon reception of a differential pressure of ink across said membrane valve, said membrane valve maintains a stable posture.

Claim 16 (new): The ink supply unit for an ink jet recording apparatus according to claim 1, wherein a shape of the thin portion of the membrane valve, including the angled portion, is smooth as a whole.

Claim 17 (new): The ink supply unit for an ink jet recording apparatus according to claim 2, further comprising:

elasticity applying means for pressing the ink passing port against said valve seat.

Claim 18 (new): The ink supply unit for an ink jet recording apparatus according to claim 2, wherein said portion including the ink passing port is thicker than said thin membrane portion.

Claim 19 (new): The ink supply unit for an ink jet recording apparatus according to claim 18, wherein an area of said thin membrane portion, including said plural protruding rib portions extending from the portion including the ink passing port to the thick portion, elastically deforms upon reception of a differential pressure of ink across said membrane valve, said area being radially inward of said thick portion supported by said supporting member.

Claim 20 (new): The ink supply unit for an ink jet recording apparatus according to claim 2, wherein when said thin membrane portion elastically deforms upon reception of a differential pressure of ink across said membrane valve, said membrane valve maintains a stable posture.

Claim 21 (new): The ink supply unit for an ink jet recording apparatus according to claim 2, wherein a shape of the thin portion of the membrane valve, including the angled portion, is smooth as a whole.

Claim 22 (new): The ink supply unit for an ink jet recording apparatus according to claim 13, further comprising:

elasticity applying means for pressing the ink passing port against said valve seat.